

Cartersville Bridge
Route 25 over the James River
Cartersville vicinity
Cumberland County
Goochland County
Virginia

HAER No. VA-11

HAER
VA
25-CART.V
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, D. C. 20240

HISTORIC AMERICAN ENGINEERING RECORD

Cartersville Bridge

HAER No. VA-11

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Location: Route 25 over the James River
Cartersville vicinity, Cumberland and Goochland
Counties,
Virginia

Date of Construction: 1884

Builder/Designer: Cartersville Bridge Company

Original Use: Bridge; all of the structure except two spans at the
ends of the bridge was destroyed by flood,
June 1972

Present Owner: Cartersville Bridge Association
Route 1, Box 77
Goochland, Virginia

Significance: Built in 1884, the Cartersville Bridge is an unusual
example of composite truss construction. Located
where Va. Route 45 crosses the James River, the center
four spans of the bridge were washed away by Hurricane
Agnes on June 22, 1972. Fortunately, the two spans
adjacent to the shore lines remained intact and today
they are owned and preserved by the Cartersville Bridge
Association of Goochland County.¹

The bridge was located at a site with a long history of crossings. Construction first took place in 1820 with the erection of a series of Burr arch trusses by David Scott under contract to the Virginia Board of Public Works.² The superstructure proved to be faulty and collapsed within a few years but the rough cut ashlar and rubble piers and abutments were utilized in the 1884 bridge and still exist today.³ In 1841, the famous engineer Claudius Crozet filed a report in concern with replacing the 1822 structure.⁴ In 1842, it was destroyed and the Richmond and Alleghany Railroad Company agreed to build a bridge on the site.⁵ At this time, three separate bridges across the James River were to be built by the Richmond and Alleghany Railroad Company and then turned over to Goochland and Botetourt County respectively. Dan Diebler, employee of the Virginia Highway and Transportation Research Council stated that these

bridges were to be used to provide vehicular access across the river, particularly to facilitate the use of the railroad by persons on both sides of the river.

All three bridges were of the same composite construction as exemplified by the 1884 Cartersville bridge. The design is essentially a pin-connected Pratt truss; however, it is distinguished by the use of wooden compression members. The Pratt truss was patented in 1844 by Thomas W. and Caleb Pratt with the main design feature being vertical compression members. Though the patent did not specify the materials to be used in it, the subsequent proliferation of wrought iron, and later steel, led to it usually being constructed entirely out of metal. Heavy trusses using a large amount of wood were usually built as Howe trusses. In a Howe truss the diagonals are in compression and the verticals in tension. Accordingly, such a design required less metal than a similar Pratt truss, as the verticals are shorter than the diagonals. By 1884, metal was available in such abundance that composite (wood and wrought/iron) Pratt truss were rarely built. The Cartersville bridge is one of the last bridges in the nation built in this manner.

The Cartersville bridge had a total length of 843 feet divided into six spans. Five of these spans were 135 feet in length and the sixth was 158 feet long. The trusses were approximately 20 feet high with a deck span of 16 feet. The top chords, end posts and verticals are double wood timbers bolted together. The diagonals and counters are wrought iron cylindrical, loop welded, eye bars and the bottom chords are either die forged or loop welded wrought iron eye bars. Cast iron connectors are also used. In 1955, the original floor beams were replaced as a safety precaution.⁶

On June 1, 1974, a new 947-foot bridge across the James River directly adjacent to the Cartersville Bridge was formally dedicated.⁷

Transmitted by:

Jean Yearby, HAER, 1984, from data compiled for the National Register of Historic Places nomination form.

FOOTNOTES

- 1 Virginia Highway Bulletin, July 1974, "Celebration at Cartersville," pp. 20-21.
- 2 Virginia Board of Public Works, Papers, Report of the Cartersville Bridge Company, 1823, (uncataloged collection), Virginia State Archives.
- 3 Virginia Highway Bulletin, December 1972, "Saving a Historic Landmark," p. 9.
- 4 Virginia Board of Public Works, Papers. Cartersville Bridge Company Report of the Cartersville Bridge Company, October 18th, 1841 (uncataloged collection), Virginia State Archives.
- 5 The Virginia Professional Engineer, January 1973, pp. 18-21.
- 6 Measured Drawings, Commonwealth of Virginia Department of Highways Proposed Repair to Bridge over James River at Cartersville (July 6, 1954), 6 sheets.
- 7 Virginia Highway Bulletin, July 1974, pp. 20-21.

Addendum to:

CARTERSVILLE BRIDGE

Route 25, Spanning James River

Cartersville

Cumberland County

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Data pages 1 through 3 were previously transmitted to the Library of Congress. This is data page 4.

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Perry E. Borchers of the Ohio State University in 1970.

One survey control contact print from each plate; survey
control information for each pair.

LC-HAER-GS05-1-101L *	NORMAL TO ROADWAY AT SOUTH ABUTMENT
LC-HAER-GS05-1-101R	NORMAL TO ROADWAY AT SOUTH ABUTMENT
	Left and right overlap: 85%
LC-HAER-GS05-1-102L *	DIVERGED FROM NORMAL TO ROADWAY TO RECORD FIRST SPAN
LC-HAER-GS05-1-102R	DIVERGED FROM NORMAL TO ROADWAY TO RECORD FIRST SPAN
	Left and right overlap: 95%

LC-HAER-GS05-1-103L *

ANGLED VIEW FROM SOUTHEAST

LC-HAER-GS05-1-103R

ANGLED VIEW FROM SOUTHEAST

Left and right overlap: 90%

PROJECT INFORMATION STATEMENT

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